

# Tightening by Stealth

## Why keeping the balance sheet of the Federal Reserve constant is equivalent to a gradual exit

Daniel Gros

### Summary

Exiting from unconventional monetary policies is now a key issue for central banks, and especially for the US Federal Reserve. This paper argues that the Fed already began this exit some time ago, and that the relevant part of its balance sheet has already shrunk by about one-quarter of GDP. Pursuing the current policy of reinvesting would lead to a full exit within ten years.

### Contents

Introduction .....	1
How to measure balance sheet expansion at the zero bound? .....	1
Conclusions .....	5
References .....	5
Figure 1. Balance sheet expansion of the Federal Reserve, 2003-17 (\$ billion) .....	3
Figure 2. Excess reserves as an indicator of the balance sheet operations of the Federal Reserve, 2003-31 (% of GDP) .....	4

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## Why keeping the balance sheet of the Federal Reserve constant is equivalent to a gradual exit

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### Introduction

When interest rates are at the zero lower bound, the stance of monetary policy is judged by the size of the balance sheet of the central bank. However, this is not quite correct since one part of the balance sheet is determined by the demand for cash, which has little to do with monetary policy or the state of financial markets. The proper metric for the stance of monetary policy (under the zero lower bound) should thus be excess reserves. Under this metric, the Federal Reserve already started to exit some time ago, and its balance sheet will ‘normalise’ automatically over the next decade, provided the trend of increasing demand for banknotes does not stop.

### How to measure balance sheet expansion at the zero bound?

Before the Global Crisis, the size of the balance sheet of central banks was of little concern. Central banks passively accommodated the demand for currency, which had implications for their balance sheet, but this was irrelevant as policy consisted of changing a (short-term) policy rate with the aim of steering financing conditions in the money market.

Balance sheet considerations came to the fore when policy rates reached zero and central banks wanted to provide further stimulus. At this point, they had to resort to ‘unconventional’ measures.

The most widely used unconventional measure turned out to be the expansion of the balance through ‘large-scale asset purchases’, also dubbed ‘quantitative easing’ (QE). There is a large empirical literature<sup>1</sup> on the impact of various forms of QE on interest rates and inflation, but there is no widely accepted theoretical model as to why an exchange of short-term central bank deposits should have an important impact on financial market conditions, at least outside an acute financial crisis.<sup>2</sup> This uncertainty about the transitional channels of balance sheet policies was expressed succinctly by the former governor of the Federal Reserve, Ben Bernanke, who is reported to have quipped, “[t]he problem with QE is that it works in practice, but it doesn’t work in theory” (Saft, 2014).

There is also a considerable gap between the academic studies on the impact of asset purchases by central banks and the interpretation of the size of the balance sheet in policy discussions. The academic literature is usually based on highly stylised and simplified models of

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<sup>1</sup> See Gagnon et al. (2010) for an early contribution, D’Amico et al. (2012).

<sup>2</sup> Williams (2014) disagrees.

the balance sheet of a central bank so that asset purchases are equivalent to changes in the balance sheet. This has carried over into the policy discussions where the two concepts are also often treated as equivalent. President Draghi has at times justified the asset purchase programme of the ECB with reference to the fact that the balance sheet of the ECB had been shrinking for some time. For the US, a clear reduction of the size of the balance sheet is usually taken as the main indicator of exit from unconventional policies, and the pace of the reduction in the balance is now at the centre of policy discussions.

In reality, however, asset purchases and balance sheet size do not always coincide. A key reason is that cash holdings also have an impact on the balance sheet.<sup>3</sup>

The US case provides a stark illustration of the importance of changes in cash holdings. The Federal Reserve (as all other modern central banks) passively accommodates any demand for currency from the public. Before the advent of unconventional policies, the balance sheet of the Federal Reserve used to be small and simple (much simpler than that of the Eurosystem). Its liability side (i.e. roughly the monetary base) comprised over 90% of the currency in circulation, with the asset side mainly comprised of holdings of Treasury bills (Bini-Smaghi and Gros, 1999). Monetary policy consisted of changing the policy rate.

When the policy rate hit the zero bound, the Federal Reserve started to expand its balance sheet by buying longer-term bonds. But it could do this only by inducing banks to hold large amounts of ‘excess’ reserves. It is the amount of these excess reserves (not its overall liabilities) that indicates the degree to which the Federal Reserve is using its balance sheet to support conditions in the financial markets. As long as cash in circulation does not change, a stable overall balance sheet indeed indicates unchanged excess reserves and thus support for financial markets.

But cash in circulation has grown considerably over the last years, while the balance sheet of the Fed has remained roughly constant in nominal terms since the end of the last round of asset purchases. This implies that excess reserves have actually declined since the Fed stopped its asset purchases. The exit from balance sheet policies has, in reality, already started.

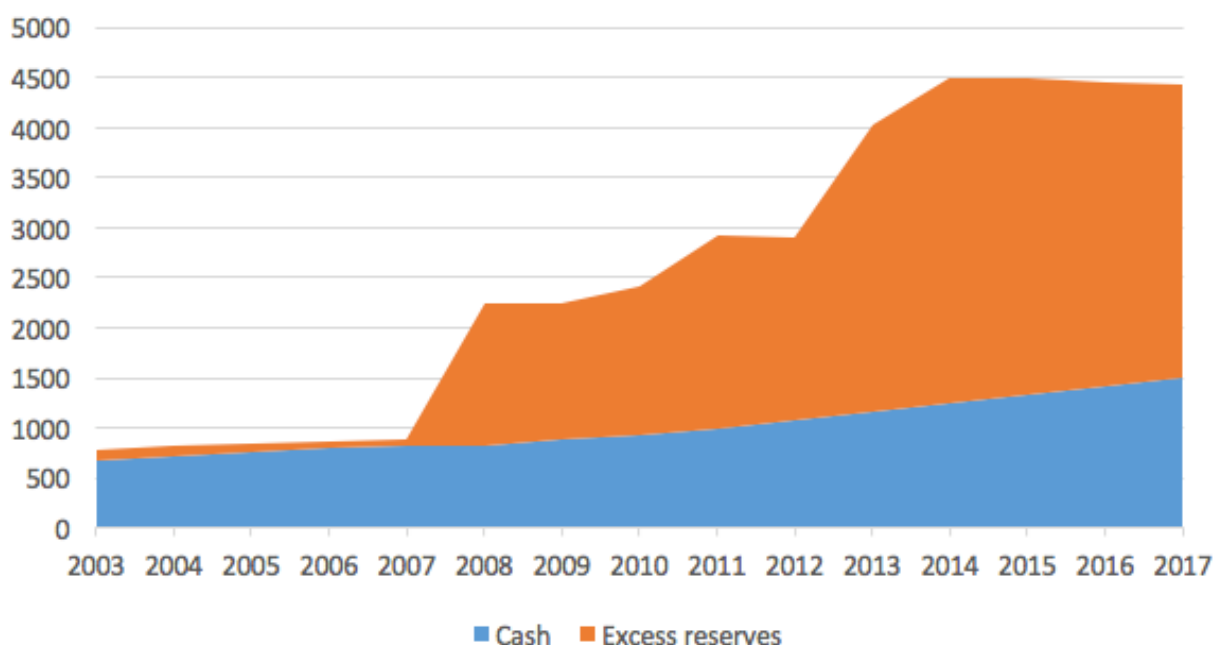
Figure 1 shows the two key components of the overall balance sheet of the Fed, namely, cash in circulation and excess reserves. It is apparent that excess reserves increased suddenly with the start of unconventional policies in 2008-09 and continued to increase with the subsequent QE II and QE III episodes. Since the end of the asset purchases, the overall balance sheet of the Federal Reserve has only declined by very little. The official narrative has been that the exit from unconventional policies should proceed in two steps: first, policy rates should be increased (which has already happened to some extent); and second, the Federal Reserve should only shrink its balance sheet later.

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<sup>3</sup> Another reason, mainly for the Eurozone, is that central bank balance sheets sometimes contain other items that have little to do with monetary policy. But the balance of the ECB is rather opaque and will not be considered here. For more details see Gros (2017).

However, the part of the balance sheet that indicates the importance of unconventional policies (excess reserves) has already started to shrink.

Figure 1. Balance sheet expansion of the Federal Reserve, 2003-17 (\$ billion)

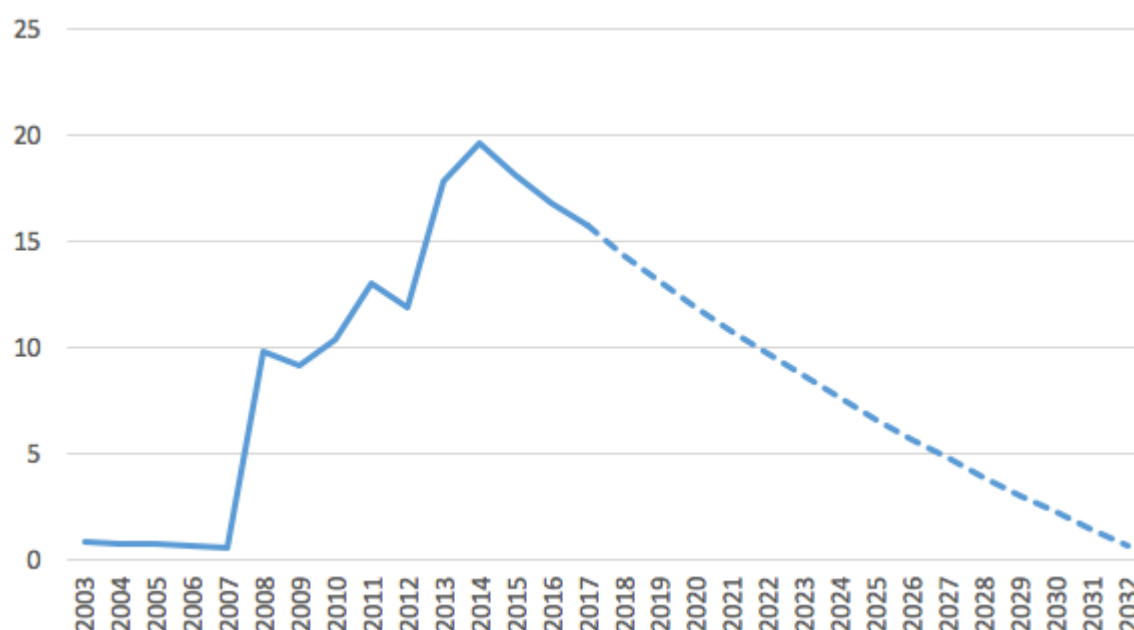


Source: Author's own balance sheet calculations based on Federal Reserve data.

Therefore, Figure 2 zooms in on excess reserves (measured here as a percentage of GDP) as the key indicator of unconventional or balance sheet policy measures. This figure shows actual data up to the present and a projection for the next decade. The three 'steps' since 2008 correspond to the three episodes of asset purchases (QE I, II, and III) which led to a peak that was close to 20% in 2013-14, but excess reserves have now declined to about 15% of GDP. On this measure, one could thus argue that the Federal Reserve has already tightened by stealth, as the support it gives through its balance sheet has declined by about one quarter, if one takes into account the increase in cash balances and the growth of GDP.

Another way to describe the situation is that in the absence of any change to the unconventional (or balance sheet) policy measures, the balance sheet would have increased by about \$300 billion. By keeping its overall (nominal) balance sheet constant, the Fed has allowed the 'unconventional' part to fall by this amount while nominal GDP has increased.

Figure 2. Excess reserves as an indicator of the balance sheet operations of the Federal Reserve, 2003-31 (% of GDP)



Source: Author's own balance sheet calculations based on data from the Federal Reserve and the *World Economic Outlook*.

Figure 2 also shows the path of excess reserves that would result if the Federal Reserve were to keep its balance sheet constant (in nominal terms) and if bank notes in circulation were to continue to increase at the same rate (relative to nominal GDP) as over the last decade. This simulation shows that if the trend in cash holdings continues for the next decade, excess reserves will continue to decline as a percent of GDP, and go to zero by about 2030. This implies that by simply doing nothing (i.e. continuing to re-invest the proceeds from any bond coming due), the Fed would achieve a gradual exit over the next decade.

The exact path for future cash holdings is of course uncertain, but there seems to be a consensus about the hypothesis that cash in circulation will continue to increase. Bernanke (2017), Davies (2017) and Credit Suisse (2017) provide similar scenarios for future cash holdings,<sup>4</sup> but they neglect to draw the same conclusions.

The same reasoning also implies that the expansionary effect of the increase of the Federal Reserve's balance sheet during its QE programme has been somewhat overestimated. Between 2008 and the summer of 2014 (when it stopped its programme), the Federal Reserve's holdings of bonds increased by about \$3.7 trillion. However, cash in circulation also increased by about

<sup>4</sup> Cash had been declared anachronistic a long time ago (Drehmann and Goodhart, 2000), but has increased relative to GDP (Rogoff, 2014). See also Orphanides (2016). Syron et al. (2017) also provide simulations for the balance sheet of the Fed.

\$300 billion over the same period. The increase in excess reserves was thus somewhat (about 9%) smaller than the expansion of the overall balance sheet.

## Conclusions

How to exit from unconventional monetary policies is now the key monetary issue for central banks, especially in the US. A close look at the data reveals that, in reality, the Federal Reserve already started the exit some time ago as the relevant part of its balance sheet has already shrunk by about one quarter, from 20 to 15% of GDP. Moreover, leaving today's policy of reinvesting unchanged would lead gradually to a full exit within ten years.

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